Guioa sarcopterifructa (Sapindaceae): a new Australian species

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Summary

van Welzen, P.C. (1997). *Guioa sarcopterifructa* (Sapindaceae): a new Australian species. *Austrobaileya* 5(1): 103–105. Australian specimens originally identified as *Guioa pteropoda* Radlk., a species only known from the Indonesian Moluccas and New Guinea, are described as a new species, *Guioa sarcopterifructa*, because the fruits are reminiscent of the genus *Sarcopteryx*. Typical are the crenate leaflets, with a highly inserted domatium, and deviating angle of the nerve below the domatium.

Keywords: Sapindaceae, *Guioa crenifoliola*, *Guioa pteropoda*, *Guioa sarcopterifructa*.

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Introduction

Several sterile specimens from northeast Queensland were initially identified as *Guioa crenifoliola* Merr. & Perry by Reynolds (1984, 1985). Fruiting material was subsequently illustrated by Cooper & Cooper (1994) who identified their collection as *G. pteropoda* Radlk. of which *G. crenifoliola* is now considered to be a synonym (van Welzen 1989). *G. pteropoda* was only known from a few localities in northwest Irian Jaya (van Welzen 1989), although recently also material became available from Ceram in the Moluccas. The disjunction in distribution with the Australian specimens is large, which makes conspecificity doubtful. Another reason to doubt the identification of the Australian specimens is the fact that all other Australian species of *Guioa* do not show a close relationship with *G. pteropoda* (van Welzen 1989). The status of the Australian populations is examined in the current paper in the light of the additional fertile specimens now available. The fruits of the Australian material strongly resemble those of the genus *Sarcopteryx* in possessing very sharp and winged edges. Several characters are incompatible with *Sarcopteryx*, like the crenate margin of the leaflets, the large domatia, an indistinct reticulation of the veins, biseriate ovate sepals, horseshoe-shaped discs, leathery fruits, absence of hairs below the placenta, and a curled instead of a straight pseudofunicle of the arillode. All the latter characters agree with the genus *Guioa*, especially with the species *G. pteropoda*. *G. pteropoda*, unlike any other species of *Guioa*, also possesses sharply edged and winged fruits. However, a few differences with *G. pteropoda* exist, the Australian specimens have larger fruits, smaller leaflets, and the domatia are much larger and they are found in the axil of the fourth nerve instead of the first or second, while the nerve under the domatium has a different angle with the midrib than the other nerves (in *G. pteropoda* all nerves have the same angle). Unfortunately, flowering specimens are lacking. The specimen I could examine had a few badly conserved petals, which broke apart when touched. These petals were very small, shorter than the sepals. This agrees quite well with the other Australian species of *Guioa*, but it is quite unlike the well-developed petals of *G. pteropoda*.

The resemblance with *G. pteropoda* is partly based on the retention of juvenile characters. Seedlings of *Guioa* show slightly winged rachises, crenate leaflets, a lack of papillae on the lower surface of the leaflets (all other mainland Australian species are papillate), and usually a lack of domatia. On the other hand, the fruits of both species are very typical and the discs very asymmetric; this may indicate a close relationship between both species, because these are obviously

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apomorphic traits in *Guioa*, though parallelisms are possible. If the two species are related, then a historical biogeographical explanation of their distributions will be a difficult but interesting analysis.

Taxonomy

Guioa sarcopterifructa Welzen, **sp. nov.** Folioli crenati domatia sacciformes in axilla nervi quarti laminarum cum nervo eodem ad angulam acutiorem patenti quam nervos alios, margines fructuum acuti alatique. **Typus:** Queensland. Cook District: Big Tableland, 15°42'S, 145°16'E, 9 Jan 1996, *K.R.McDonald* 21 (holo: QRS; iso: L).

G. crenifoliola auct. non Merr.& L.M.Perry:S.T.Reynolds, Austrobaileya 2: (1984) 37, fig. 2k, l; in Flora of Australia 25: 47, map 56 (1985).

G. pteropoda auct. non Radlk.: W.Cooper & W.T.Cooper, Fruits of the Rain Forest 510, fig. 310 (1994).

Illustrations: Cooper & Cooper (1994, fig. 310); Reynolds (1984, fig. 2k, l; 1985, map 56).

Small tree, up to 6 m tall. Leaves paripinnate, alternate, 4–6-jugate; rachis 7–12.5 cm long, slightly winged; leaflets opposite to subopposite, (sub)sessile, elliptic, 3–5.5 ×1–1.5 cm, asymmetric, acroscopic side wider, base strongly asymmetric, attenuate, margin crenate, apex acuminate, very apex rounded, glabrous, lower surface lighter when dry, domatia absent or a single large sac with apical pore in axil of fourth nerve; venation very indistinct, nerves marginally looped and joined, nerve below domatium possessing sharper angle with midrib than other nerves. Infructescences subterminally axillary, presumably thyrsoid, up to c. 10 cm long. Flowers not seen. Sepals 5, ovate, outer 2 smaller, 2.2–2.5 × 2–3 mm, inner 3 larger, 2.2–2.8 × 2.5–4 mm, margin with glandular hairs. Petals: only remnants seen, smaller than sepals. Disc strongly horseshoe-like, smooth, glabrous. Fruit capsular, 3-lobed, obcordate, c. 2.5 cm high, 2.7 cm broad, loculicidal, leathery, thin-walled, smooth, glabrous, pink to red, margins sharp, winged. Seed ovoid, c. 8 × 6 mm, blackish brown; enveloped by an orange arillode; latter apically open, basally with a curled extension attaching to endocarp, seed dangling from it after dehiscence. Cotyledons unequal, curled together like a hand-shake. Seedlings epigeal; cotyledons thick, c. 17 × 4–5 mm, irregular, keeled below, margin entire or with a few small teeth, ciliate, venation indistinct; first pair of leaves opposite, imparipinnate with c. 4 jugae, rachis winged, leaflets with 2–4 deep teeth, domatia present.

Additional specimens studied: **Queensland.** Cook District: Big Tableland, Jan. 1994, *Cooper & Cooper* 734 (QRS); Windsor Tableland (Northeast of Mt. Carbine), June 1969, *Hyland* 2311 (BRI); Gold Hill near China Camp, July 1973, *Webb & Tracey* 13314 (BRI).

Distribution and habitat: *Guioa sarcopterifructa* is endemic in northeastern. Queensland, Windsor Tableland to Big Tableland, in upland rainforest; alt. 400–1000 m.

Etymology: The specific epithet refers to the close resemblance with the fruits of the genus *Sarcopteryx* (Sapindaceae).

Note: The key to the genera of Sapindaceae in the *Flora of Australia* (Reynolds 1985) does not have to be changed, but floral characters, which are for instance needed in lead 20, 21, are still absent. It is unknown whether or not *G. sarcopterifructa* has scales.

The key to the species of *Guioa* (Reynolds 1985: 47) only needs a minor change, the name *G. crenifoliola* has to be changed to *G. sarcopterifructa*. The description can be replaced with the one presented above.

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Sally Reynolds pointed my attention to the fact that fruiting specimens have been found of what was hitherto known as *Guioa crenifoliola* or *G. pteropoda*. On behalf of Bernie Hyland, Rebel Elick was so kind to send a specimen for study. I am also glad that Hans-Joachim Esser was willing to make the Latin description. Bernie Hyland added information on seedlings and suggested a few improvements to the manuscript, which were gladly added. An anonymous referee is thanked for his useful comments.

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